

REMARKS

Claims 1-31 are pending in the application after this amendment. The amendment and/or addition of claims is not to be considered in any way an indication of applicant's position on the merits of the amended and/or added claims. In the following sections of the Amendment the rejections set forth by the Examiner in the September 15, 2004, Office action are addressed. These rejections are respectfully traversed, and detailed arguments are set forth below.

A preliminary matter, the specification has been amended to correct a minor grammatical error. It is submitted that this amendment should not be objectionable.

Also as a preliminary matter, applicant submits herewith an Information Disclosure Statement (IDS) and references of which applicant was recently made aware. Applicant respectfully requests that the references set forth on the IDS be considered and acknowledged.

The Examiner rejected claims 1-20 under 35 USC §102(b) as being anticipated by U.S. Patent No. 4,767,262 to Simon (the "Simon reference"). Applicant has also reviewed U.S. Patent No. 6,072,397 to Ostrowski and U.S. Patent No. 5,370,576 to Krofchalk. None of these cited references is directed to a fan array fan section in an air-handling system as defined in the specification of the present application. (See page 2 of the original specification. "An air-handling system is defined as a system that includes components designed to work together in order to condition air as part of the primary system for ventilation of structures." Structures are defined in the specification as buildings or rooms.) Applicant would like to note that he considers these references nonanalogous as the issues relating to fans for computer systems or small electrical appliances operate under completely different principles than those applicable to air-handling systems. Issues that are significant to air-handling systems are non-issues in fans for computer systems or small electrical appliances. For example, the quantity of air and the weight of the fan units are non-issues in fans for

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computer systems or small electrical appliances, but are significant to air-handling systems. Another non-issue in fans for computer systems or small electrical appliances that is significant to air-handling systems is the control over air delivery rates to meet varying demands under varying pressure loads and the controlling of the fan array to achieve optimum efficiency by selectively turning fans off or on to meet system diversity caused by filter loading and/or cooling requirements related to the process or external environment.

The references provided with the enclosed IDS (the "IDS references") may teach an air-handling compartment within which an fan array of fan units may be positioned. Applicant specifically does not admit that the IDS references are prior art. However, for the purpose of furthering prosecution applicant will address the IDS references as though they are prior art. The IDS references disclose the RL Series Rooftop Conditioners produced by AAON, Inc. A rooftop conditioner has different requirements than an air-handling compartment that is positionable within a structure. For example, whereas a rooftop conditioner is primarily concerned with structure-borne sound, airborne sound is not a significant concern. The spring mounting of the assembly, for example, is an attempt to reduce structure borne sound. It should be noted that the IDS references also do not teach or suggest other claimed elements which are addressed below in discussions of the individual claims.

Applicant would like to remind the Examiner that there are many reasons why the combination of the IDS references and a nonanalogous reference such as the Simon reference would be improper. For example, the mere fact that the references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). There is no teaching in either reference that such a combination is desirable. Further, although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." *In re Fritch*, 972 F.2d at 682, 16 USPQ2d at 1432.) There is no suggestion or motivation in either reference to do so. Still further,

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the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish *prima facie* obviousness. Finally, the proposed modification cannot render the prior art unsatisfactory for its intended purpose (MPEP 2143.01). The IDS references would not be able to function properly if the Simon half-shell casings were used to support the IDS reference fan units because the Simon material (talc-reinforced polypropylene) would simply not be able to support the weight of the IDS reference fan units nor would the use of talc-reinforced polypropylene in any capacity in the vicinity of the fan result in a reduction in fan sound levels.

The following paragraphs are directed to specific claims. Dependent claims not specifically addressed are allowable for the same reason as discussed for their respective independent claims as well as for the limitations contained therein.

Claim 1 and the claims dependent thereon have been amended to specifically recite "at least six fan units." As set forth in the enclosed DECLARATION OF LAWRENCE G. HOPKINS, a system having six or more fans has unique properties that are not present in systems having less fans and it would not have been obvious to increase the number of fans. The substantially improved results would have been unexpected to one skilled in the art.

Claims 1 and 12 specifically recite an array controller programmed to operate the fan units at peak efficiency. The Simon reference teaches two ways to control the fans. First, the user can manually control the number of fans by inserting and connecting the desired number of fans. (Column 3, lines 21-23.) Second, an electric control block can supply a control voltage to the number of fans provided in the fan slide in unit to control the speed of the fans. (Column 3, lines 24-33.) In other words, the Simon reference allows no air to be supplied by manually removing or disconnecting the fan. Otherwise, all the fans are controlled by a single control voltage, that can be varied, but it runs all the fans at the same speed. At lower speeds, the fans would be inefficient. The IDS references appear to recognize that fan units may be taken off-line (e.g. for maintenance). However, these references do not appear to teach or suggest any means by which a controller can operate said plurality of fan units at

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peak efficiency by strategically turning on and off selective ones of said plurality of fan units.

Claims 11 and 31 specifically recite an air-handling compartment positionable within a structure such that said air-handling system conditions the air of said structure. The references cited by the examiner do not teach or suggest this limitation because they do not condition the air of the structure. For purposes of argument only and without making such an admission, if the PC casing is equivalent to the air-handling compartment, then the room or building in which the PC casing is positioned must be the structure, but the "air-handling system" inside the PC casing does not condition the air of the structure. The IDS references also do not teach or suggest such a system positionable within a structure, but specify that their systems are positionable on the rooftop, above a structure.

Claims 3 and 14 specifically recite an airway path being less than 72 inches. The IDS references do not teach or suggest a shortened airway path. The IDS references disclose airway paths between 75.5 inches and 90 inches. The AAON references do not teach or suggest that the airway paths could be shortened or that there is any desirability to do so. In a system that is internal to a structure, because real estate (e.g. structure space) is extremely expensive, a larger size air-handling compartment is extremely undesirable. Using the present invention, reducing the size of the fan unit and motor reduces the length of the discharge plenum. Similarly, reducing the size of the inlet cone reduces the length of the inlet plenum. The length of the discharge plenum can also be reduced because air from the fan array fan section in the air-handling system of the present invention is substantially uniform whereas the prior art air-handling system has points of higher air velocity and needs time and space to mix so that the flow is uniform by the time it exits the air-handling compartment. The fan array fan section in the air-handling system takes in air from the inlet plenum more evenly and efficiently than the prior art air-handling system so that the length of the inlet plenum may be reduced.

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Claims 8 and 18 specifically recite that the fan unit chambers have at least one acoustically absorptive insulation surface. As set forth in the original specification, this goes against conventional industry wisdom that surfaces cannot be placed in close proximity with the fan units without disrupting air flow. In the September 15, 2004 Office action the Examiner sites column 2, lines 26-38 of the Simon reference as teaching insulation. Applicant has reviewed this reference carefully and believes that there is a distinction between the material from which the Simon half-shell casings are constructed and the acoustically absorptive insulation surface(s) of the presently claimed invention. Applicant believes that the Simon material must be rigid. This belief is based on the fact that the Simon half-shell casings must support the weight of the individual fans and the fact that the suggested material (talc-reinforced polypropylene) is rigid material. As a rigid material, the Simon material would not be an acoustically absorptive material (insulation material). Applicant believes that the noise that the Simon material would absorb would be structure-borne noise – not airborne noise. None of the IDS references teach or suggest the use of acoustically absorptive insulation to effectively attenuate air-borne noise. The insulation used in the IDS references is thermal insulation and is only placed on the exterior surface of the air-handling compartment.

Claims 10 and 20 specifically recite the spacing between the fan units being less than 60% of the fan wheel diameter. The IDS references do not teach or suggest such spacing.

Claims 23 and 24 specifically recite that the array controller is programmed to operate the fan units at substantially peak efficiency by strategically turning off at least one fan unit operating at reduced efficiency and running the remaining fan units within peak efficiency operating range. This feature is not taught or suggested by any of the known references.

New claims 25 and 26 specifically recite that the array controller is programmed to operate the six fan units at peak efficiency for a performance level

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based air volume, level of air flow, pattern of air flow, or number of fan units to operate. This feature is not taught or suggested by any of the known references.

New claims 27 and 28 specifically recite that the array controller is programmed to operate the fan units to produce a stable operating point and eliminate the surge effects. This feature is not taught or suggested by any of the known references.

New claims 29 and 30 specifically recite that the array controller is programmed to selectively control the speed of each of the fan units to run at substantially peak efficiency. This feature is not taught or suggested by any of the known references.

In view of the above, it is submitted that the currently pending claims are patentable. Accordingly, the Examiner is requested to reexamine the application, to allow the claims, and to pass the application on promptly to issue.

A Petition for Extension of Time for Three months is enclosed herewith.

Please charge Deposit Account No. 50-2115 for any additional fees that may be required.

Respectfully submitted,



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